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ABSTRACT

The Water in Africa Project was realized over a 2-year period by a team of Peace Corps volunteers, World Wise Schools (WWS) classroom teachers, and WWS staff members. As part of an expanded, detailed design, resources were collected from over 90 volunteers serving in African countries, photos and stories were prepared, and standards-based learning units were created for K-12 students. This unit, intended for primary grade students, is designed to facilitate students' understandings of the value of water through reading stories from Peace Corps Volunteers who served in Kenya (East African region) and Ghana (West African region). Each student will make a book comparing the value of water in the United States, Kenya, and Ghana. An overall goal is to develop students' understandings of the similarities and differences of how the people in Kenyan and Ghanaian communities and their own community value water. The unit can be used in reading and writing classes. Two to three weeks is needed for completion. The unit lists materials needed, outlines applicable standards, poses discussion questions, and gives student objectives. It details day-by-day procedures for the teacher, discusses reading and writing assessment, suggests follow-up/enrichment activities, and lists five print resources. (BT)

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World Wise Schools

Water in Africa

PEACE CORPS

Precious Droplets: The Value of Water

http://www.peacecorps.gov/wws/water/africa/lessons/

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Water in Africa is a project of Peace Corps World Wise Schools.

2000

Funded through a grant from the Department of Education, the Water in Africa project was realized over a two year period by a team of Peace Corps Volunteers, World Wise Schools' (WWS) classroom teachers, and WWS staff members. Inspired by an idea of one creative WWS teacher, the project eventually expanded into a detailed design. The development and implementation of the design included the collection of resources from over 90 Volunteers serving in African countries, the preparation of those photos and stories, and the creation of standards-based learning units for K-12 students.

Precious Droplets: The Value of Water

Description:

This unit is designed to facilitate students' understandings of the value of water through reading stories from Peace Corps Volunteers who served in Kenya (East African Region) and Ghana (West African Region). As a product of this unit, each student will make a book comparing the value of water in the United States, Kenya and Ghana. An overall goal is to develop students' understanding of the similarities and differences of how the people in Kenyan and Ghanaian communities and their own community value water.

Timeframe: Two to three weeks depending on abilities and skills of the students

Curricular Areas: Language Arts: Reading, Writing

Grade Level: Primary Grades 1-2 (Can be adapted to Intermediate Grades 3-5)

Materials

- Six glasses or clear plastic cups
- A small bouquet of cut flowers
- 16 ounces of milk
- Kids World on the Peace Corps Web site: http://www.peacecorps.gov/kids/index.html
- Student Reading Booklets: "Precious Droplets: The Value of Water in Kenya," and "Precious Droplets: The Value of Water in Ghana,"(copies needed for teacher and students)
- Images from Kenya: KE0101, KE0226, KE0229, KE0305, KE0312, and KE0335
- Images from Ghana: GH0106, GH0208, GH0210, GH0304, GH0323, GH0424, GH0609, GH0617, GH0708,
- Photo Narratives for Kenya the Value of Water
- Photo Narratives for Ghana the Value of Water
- Venn Diagram
- Writing Evaluation Rubric
- Reading Evaluation Rubric
- Maps and globes
- Digital image software (optional)
- Writing booklets for students
- Optional: Word Processing software to author reading booklets

Standards

Language Arts Standard 1: Demonstrates competence in the general skills and strategies of the writing process

Benchmark-- Prewriting: Uses prewriting strategies to plan written work

Benchmark-- Drafting and revising: Uses strategies to draft and revise written work

Benchmark-- Editing and publishing: Uses strategies to edit and publish written work. Evaluates own and others' writing

Benchmark-- Dictates or writes with a logical sequence of events

Benchmark-- Dictates or writes detailed descriptions of familiar persons, places, objects, or experiences

Language Arts Standard 2: Demonstrates competence in the stylistic and rhetorical aspects of writing

Benchmark-- Uses general, frequently used words to convey basic ideas

Language Arts Standard 3: Uses grammatical and mechanical conventions in written compositions

Benchmark-- Forms letters in print and spaces words and sentences

Benchmark-- Uses complete sentences in written compositions

Benchmark-- Uses nouns, verbs, adjectives, and adverbs in written compositions

Benchmark-- Uses conventions of spelling, capitalization, and punctuation in written compositions

Language Arts Standard 4: Gathers and uses information for research purposes

Benchmark-- Generates questions about topics of personal interest

Benchmark-- Uses books to gather information for research topics

Language Arts Standard 5: Demonstrates competence in the general skills and strategies of the reading process

Benchmark-- Uses picture clues and picture captions to aid comprehension and to make predictions about content

Benchmark-- Decodes unknown words using basic elements of phonetic analysis

Benchmark-- Uses self-correction strategies

Benchmark-- Reads aloud familiar stories and passages with attention to rhythm, flow, and meter, prose and difficulty of the material

Language Arts Standard 7: Demonstrates competence in the general skills and strategies for reading a variety of informational texts

Benchmark-- Applies reading skills and strategies to a variety of informational books

Benchmark-- Summarizes information found in texts

Benchmark-- Relates new information to prior knowledge

Language Arts Standard 8: Demonstrates competence in speaking and listening as tools for learning

Benchmark-- Makes contributions in class and group discussions

Benchmark-- Asks and responds to questions

Benchmark-- Follows rules of conversation

Essential Questions

1. Why is water valuable?

2. How does your access to water influence how you value water?

Objectives

Students will:

- use maps and globes to locate the continent of Africa, two regions in Africa, and the countries of Ghana and Kenya.
- use reading skills and strategies to learn the content of narratives and images from Peace Corps Volunteers who served in Kenya and Ghana.
- use reading skills and strategies to develop understandings of the similarities and differences relating to the value of water resources.
- develop enduring understandings of how water is a valued resource for life.

Procedure

Day One

Please Note: The teacher may choose to use images/stories from both African countries (Kenya and Ghana) to provide students with understandings of different regions of Africa or may choose just one African country depending on the classroom curricular goals and time available. If the geography units are taught before or in conjunction with this unit, the activities for day one will simply be review.

As a product of this unit, each student will make a book comparing how water is valued in America, Kenya and Ghana. Each time they study a new country, they will write a narrative, and draw pictures. The narratives are revised and edited. This process will take place throughout the unit.

Before you begin the unit, send a letter home to parents communicating information about the Precious Droplets learning unit, including a summary of goals and activities. Describe the experiments with water that you will be conducting in class during the first week of lessons, and make sure the parents know that on the first day you intend to limit their child's intake of water for several hours. Be sure to ask them to inform you of any health considerations that would prevent their child from participating in the first day's experiment.

Also include the Water in Africa Web site.(http://www.peacecorps.gov/water/africa/) Encourage parents to connect to this unit on the Peace Corps web site at home or at the local public library. Communicate with your local public library about creating an educational link to the Water in Africa Web site as a resource for parents and students in the class.

1. Tell the students that as part of a new unit about water they will perform some experiments to show ways that they value water. The first experiment will begin immediately. Make a show of pouring two large glasses or clear plastic cups of water and placing them in a location where all the students can see them. Tell the students that they can look at this water, but they cannot have any more water to drink for the next several hours. Resume your regular class activities until the specified time has passed. Note: Use your discretion about the length of time to conduct this experiment. In some cases the remainder of the day would not be a hardship, but if you live in dry area, are experiencing dry heat, or if your students will be vigorously exercising, do not limit their intake of water for more than a couple of hours.

2. At the end of the specified time, let your students get drinks of water and then ask them how they felt about the water they just drank. Was it any different from the water they drank on any other day? What were they thinking when they saw the full glasses of water that they could not have? Ask them if they would have traded something for a drink. Bring out the concept that people seem to value things that are scarce more than they value what is readily available.

3. Write "The Value Of Water" on a large piece of chart paper and ask the students what they think this means. Talk with the students about why they need water in their community and generate a list of their experiences, including their comments on the experiment of the day. Keep the chart hanging in the classroom as reference for the students. Explain that they will be adding things to this list as they learn more about the value of water. Explain that they will first learn about their own community, and then they will look at some African communities in Kenya and Ghana to see how the people who live there value water.

Days Two and Three

1. Tell students that today they will conduct another experiment to show the value of water. Ask the students what they think will happen if flowers don't get any water. Discuss this question for a few minutes, and then summarize what they say and write their hypothesis on a large piece of chart paper.

2. Take a small bouquet of flowers and divide it into two bunches. Place one bunch in a glass with water, and the other in a glass with no water in it. Tell the students that they will be observing the flowers over the next two days to see what happens to them.

3. At regular intervals (chosen by availability in your schedule) have the students gather around the glasses of flowers and observe them. Discuss their observations, and keep a table with their data, on the chart with the hypothesis. For example:

Time	Observations of Flowers with Water	Observations of Flowers without Water
One hour	Look good Stems are straight Has all the petals and leaves	Look good Stems are straight Has all the petals and leaves
Three hours	Look good Stems are straight Has all the petals and leaves	Are bending a little bit Leaves are curling up on the edges

4. At the end of two days, review the data chart with the students. Have them go back to their hypothesis and ask them if they proved that they were right. Then resume your discussion about the value of water, and ask the students what they have learned from their experiment. Write pertinent comments on the chart that you began on the first day of the unit, "The Value of Water."

Days Three and Four

1. Tell the students that today they will begin another experiment that will last for two days. Ask the students to hypothesize what they think will happen if they pour two glasses of milk, drink the milk, rinse one of the glasses with water and leave the other one without rinsing it. After discussion, formulate a hypothesis and write it on a new piece of chart paper.

2. Bring out two glasses or clear plastic cups and pour milk into each of them. Have someone drink the milk, or pour it back into the containers. Be sure to leave a very small amount in each glass so the students can tell there was milk in the glasses. Tell the students you are going to rinse one of the glasses with water, and do so, swirling the water around in the glass before pouring it out. Mark the glasses with a permanent marker so you know which one was rinsed. Place the glasses where students can observe them.

3. As in the flower experiment, create a table for the students' observations on the chart

with the hypothesis. Guide the students' observations on a regular basis. Note that there will be one day (or more, if you so choose) of overlap, where the students will be observing and collecting data about two experiments.

Time	Observations of Rinsed Glass	Observations of Milky Glass
One hour	Smells a little bit like milk Almost see-through	Smells like milk Not very see-through
Three hours	Smells a little bit sour Glass is dry	Smells sour Milk is dried in bottom looks white

4. At the end of two days, review the data chart with the students. Have them go back to their hypothesis and ask them if they proved that they were right. Then resume your discussion about the value of water, and ask the students what they have learned from their experiment. Write pertinent comments on the chart that you began on the first day of the unit, "The Value of Water."

Day Four

Using "The Value of Water" chart and the data they have collected through observation, have the students start on the product they will be creating, a book about the value of water. Have them write or dictate stories and draw pictures about why water is important, and how they value it. Help students revise and edit their work using the writing process adopted in your district. For primary students, you may choose to work with the groups one at a time for 15 minutes each day or have parent volunteers in the classroom so that each group has a mentor. Have students share their work with the class.

Day Five

(Note: If you have already taught "Splish-Splash: Daily Use of Water" unit, there is no need to teach this step. However, you may wish to review the information with the students.)

1. Explain to students that they will be learning about ways people in countries of Africa use water in their communities and homes. Tell them that they will be seeing photos and reading real life "Ways with Water" stories from Peace Corps Volunteers in the African country of Ghana and Kenya. Write the words "Peace Corps Volunteers" on the board and ask the students what those words mean. Help students define each of the words individually and their meaning together.

   The goal is that the students understand that our country has an organization called the Peace Corps, which sends volunteers to countries around the world to help others and learn with them.

2. Use the Peace Corps web site, especially the Kids World pages to develop their understandings of Peace Corps Volunteers. Explain that Volunteers share their

experiences on the Peace Corps Web site and that the class will be reading some of their stories about water in communities of Africa. Spend more time on Kids World familiarizing students with the concept of Peace Corps.

Day Six

1. Using a political world map and globe, show the class the location of your own community, country and continent. Have a few students take turns showing the class the location of your community, country and continent. This establishes an understanding of where the place they live is located in the world. Write the name of your community, country and continent on the board for students to re-read.

2. Next show the students the location of the continent of Africa. Show them Kenya in the region called East Africa and Ghana in the region called West Africa. Have a few students take turns showing the location of these three countries and naming the regions of Africa in which each is located. Write the names of the two countries and the continent of Africa on the board for students to reread.

3. Using a political map of the continent of Africa, show the class the locations of the two countries of Kenya and Ghana. Have students take turns locating these two countries on the map continent of Africa.

4. Optional: Set up a classroom Globe/Map Center in the classroom with maps, globes and geography books that students can use to locate these countries and look at their relationship to the continent of Africa to their own country and continent.

Day Seven

Prior to Class: Prepare the images from Kenya and Ghana by saving the pages or downloading the images to your computer. See the Help section for suggestions and assistance. Use web browser or digital image software to show them to your class.

Print the images from Kenya and put them in a three ring binder notebook with the accompanying Photo Narratives for Kenya Value of Water. Make this available for students to use on their own after the initial introduction on the computer.

1. With the whole class or with small groups gathered around the computer, show the students the set of Kenya images that show the value of water: KE0101, KE0226, KE0229, KE0305, KE0312, and KE0335. As each image is shown, ask the students to describe what they see. Then read or have a child read the narrative descriptions for each photo. Take time to have the students ask questions and make comments about the images. Use prompting questions such as:
   - In this picture, what shows that people value their water?
   - Do the people value water for people?
   - Animals? Crops?
   - Can you tell from the pictures why the people value the water?

- What ideas do you have about how they value water for health and for the environment?

2. Write down and define any words that are not familiar to the students. This can be their vocabulary list for the week. Write the words on chart paper or on the board for students to see throughout the unit.

Day Eight

Review vocabulary from the unit by having students play games such as memory or concentration, matching up definitions with vocabulary words. For informal assessment repeat the sequence of photos and ask the students to reread the captions and then give an accurate description about each of the images. Help them to verbally describe the content of the images in their own words with accuracy, using descriptive language.

Day Nine

1. Read aloud the stories of David Frommell, Kendall Rondeau, and Barbara Hinsman from "Precious Droplets: Stories about the Value of Water in Kenya. Identify unfamiliar words, define and add them to the vocabulary list. Give each student copies of the stories. You may choose to edit or revise sentences, vocabulary, and story length to accommodate students' reading skills. Depending on your class reading levels, you may choose to select more stories from the stories about the sources of water from Kenya on the Water in Africa Web site. http://www.peacecorps.gov/wws/water/africa/lessons/

2. Using your classroom reading instruction process, strategies, and groupings, provide reading instruction to students. Check students' comprehension by having them restate what they have read, relate what they have read to their own experiences, and share their own ideas, reflections and responses about what they have learned from reading.

3. Record the ways Barbara Hinsman's community in the Rift Valley, Kendall Roneau's community in Mikarati, and Barbara Hinsman's Vigeze Village community value water, how they protect and manage the water, and water-related problems the community faces.

Day Ten

1. Review the vocabulary learned to date. Have students take turns reading the charts about the value of water that are hanging around the room.

2. Have the "Precious Droplets: Stories about the Value of Water in Kenya."(PDF or RTF) available in the classroom library for students to read independently and practice reading with one another.

3. Work with the students to write narratives and draw pictures about their understandings of the value of water in the Kenyan communities they learned about though the photos

and stories. Point out the charts that are hanging around the room and tell students that they may use these for reference. These narratives will be revised, edited, and published in the book they are creating about the value of water.

4. Have each student share his or her writing with the whole class and then add the writing to his or her book about the value of water. Provide opportunities for questions/comments from classmates.

Days Eleven through Fifteen

1. Review the locations of Kenya and Ghana on a map.

2. Explain that students will begin to study the value of water in Ghana. Follow the same procedures that you used previously while learning about the Kenyan communities, but substitute the following images from Ghana GH0106, GH0208, GH0210, GH0304, GH0323, GH0424, GH0609, GH0617, GH0708,

3. Use the "The value of water" stories of Sasha Bennett, Nell Todd, Amy Wiedemann, and Molly Campbell from "Precious Droplets Stories About The Value of Water in Ghana."

Day Sixteen

1. Explain to the students that they will identify similarities and differences of how people value water in their own communities and the ones they have studied in Kenya and in Ghana.

2. Draw a three-ring Venn diagram on the chalkboard with each circle labeled for a country. Explain how to use it by beginning a discussion of the water access that they have read about and written about in the past two weeks. When students mention an activity from one country, ask them whether it is similar to or different than what is done in the other two countries. Write the activity in the correct ring. Demonstrate one or two activities in this manner.

3. Break the class into groups of two or three and Distribute copies of the Venn diagram. Give them 15-20 minutes to record as many similarities and differences in water access as possible. Rotate around to mentor the students in their work. For primary students, an option is to have parent volunteers or have older, intermediate students assist each group. Provide copies of "Precious Droplets Stories about the Value of Water in Kenya" and "Precious Droplets Stories about the Value of Water in Ghana" for each group as a reference. Have printed copies of the country images and their narratives available for reference also.

4. Bring the whole class together in front of a classroom writing board with the three-ring Venn diagram. Have each group share their answers while you record them onto the large Venn diagram on the board.

5. Collect the Venn diagrams for assessment purposes and to be used by the groups when they complete their writing assignment. Assess their Venn diagrams for number of ideas and accuracy of content.

Day Seventeen

1. Distribute the Venn Diagrams the students completed the previous day. Ask them what they can tell about how and why people value water in these communities by looking at their diagrams.

2. Elicit statements and write them down as samples for the students, for example: Some people in our community, in Kenya and in Ghana value water so they can grow crops. People in some communities in our community, in Kenya, and Ghana value water to keep themselves and their homes clean.

3. Have students work with a partner to write more about similarities and differences. If possible, have parent volunteers or intermediate grades students assist the pairs of students. This will be the last part of the book on the value of water.

4. Tell each student to draw a picture to illustrate his/her comparison page.

Day Eighteen

1. Give the students all the pages they have written about the value of water. Help them put them in order. Tell them to think of a title for their books, and then help them create a cover that includes the title and themselves as author.

2. Help each child bind his/her book.

3. Have students read their books aloud to each other. Arrange for them to read them to other audiences in the school, home, and community.

Assessment

Reading Assessments

Use the reading rubric that is provided to assess your students' ability, or alternatively, use the methods that are recommended by your school or district.

Writing Assessments

Use the writing rubric that is provided to assess your students' ability, or alternatively, use the methods that are recommended by your school or district.

Follow-up/Enrichment Activities

1. Ways with Water Classroom Library: Using the Internet for a student literature search, the local school or community library, or a bookstore, the teacher can identify and locate student literature for additional reading materials for a classroom library, to be used along this unit. Books about geography and water and the countries of Kenya and Ghana will give further context to students' cultural and geographic understandings.

2. Art Lessons: Using the visual images and descriptive narratives in the reading booklets of the Drip Drop unit, have students use art materials (crayons, watercolors, markers, pencil sketches) to create their own illustrations.

3. Presentations: Have the class present their books, or parts from them, to other classes in the school. Students can choose to show images from the Web site that they think are relevant to their books.

Additional Resources

Student literature for World Geography

Where Do We Live? By Neil Chesanow. Illustrated by Ann Iosa. Barron's . N.Y 1995. Student literature for regions of West Africa and East Africa

Kente Colors (Ghana) By Debbi Chocolate. Illustrations by John Ward. Walker and Company, New York. 1996.

1999 A.S.A. Student's Book Awards: Master Weaver from Ghana by Gilbert Ahiagble, Louise Meyer, and Nestor Hernandez (Open Hand Publishing, 1998)

Countries of the World: Kenya and Ghana. By Michael Dahl. Bridgestone Books, Mankato, MN. 1997.

Ntombi's Song (South Africa) By Jenny Seed. Illustrations by Anno Berry. Beacon Press, Boston. 1987.

About the Author

Kristi Rennebohm Franz is a primary teacher of a multiage class at Sunnyside Elementary School in Pullman, Washington. She has also taught in Nairobi, Kenya and has traveled to West and South Africa. She has authored the Ways With Water Reading Unit using a combination of her interests in Africa and interests environmental/community issues of water resources education. She says this about her unit: The Ways with Water unit was piloted in my primary classroom but is also applicable to intermediate classrooms. My class especially liked the images! These are such powerful conveyors of information and experiences to children. The students had lots of comments. I downloaded the images into a folder on my computer desktop so it was easy to view them in graphic converter software. I also liked having the narratives in a

document so we didn't have to read the captions from the computer screen--the children could take turns reading them because they were in a larger font than on the screen. The class also liked having the reading booklets for learning to read and for re-reading with classmates who were reading partners. Nicole Manning, a former primary school teacher and returned Peace Corps Volunteer who served in Thailand, and Maureen Wilson-Jarrard contributed to the creation, revision and editing of this plan.

Precious Droplets

Stories About The Value of Water In Kenya

By Peace Corps Volunteers
Who Served in Kenya
in 1999

Value of Water in Kenya

By by **David Frommell**, Bagoo, Rift Valley Province, Kenya

The water works in Kericho Town draws water from a freshwater river in the Mau Forest, a gazetted (protected) forest. The community takes great measures to ensure a clean water supply. The forest intake is 15 to 20 kilometers from town, deep in the forest; the treatment works sits about 13 kilometers from town center. These distances prevent contamination by pollution from farms and industries.

The Mau Forest is owned and protected by the Government of Kenya. Development, farming, and tree harvesting are forbidden by law within the Forest, which lies almost entirely within Kericho District. The treatment works was built at great expense, considering the distances involved for moving water. A German corporation sponsored and funded the multi-million dollar construction project, which is now managed by the Town Council. The wealth of Kericho Town related to water is immeasurable.

Unfortunately, the municipal water supply fails to reach every home in the District. Many families are forced to use local streams, wells, and springs for their water heads. Many communities form self-help groups, which undertake water projects to protect local sources from contamination or to construct rooftop rainwater catchment systems. Such groups make direct investments of money, time, and sweat to provide themselves and their children clean water.

Families that cannot afford to invest in protected water supplies use water drawn from sources that may be contaminated with pesticides, viruses, bacteria, or protozoa. Those with enough resources boil their water using wood, kerosene, propane gas or charcoal. Others drink unboiled water, commonly resulting in illnesses such as cholera, typhoid, amoebiasis, giardiasis, and other forms of dysentery. Such diseases claim many lives and adversely impact Kericho's productivity, whether measured in school days, agricultural output, or work hours. Although my local community is blessed with well-designed water facilities, much work is needed to ensure a safe water supply for the entire district.

Value of Water in Kenya

By **Kendall Rondeau**, Mikarati, Kenya

Farms around this area have joined together in huge water projects benefiting hundreds of people per project. They have built intakes in the mountain rivers, bringing piped water to many farmers. Although this seems like good development and progress, especially helping women, I have noticed some detrimental effects. The river water is not measured or monitored. Anyone who has money can join a water project and so, as time passes, more and more people are drawing on the rivers. Some rivers have become seasonal from too much use. They dry up in the hot months when we have no rain.

Another detrimental effect is that farmers along rivers and streams farm right up to the very edge of the waterway. They do not follow the law requiring 8' of natural, indigenous vegetation to be left along the river edges. This farming up to the banks of the rivers leads to erosion, especially following hard rains (which we have almost daily). The rivers are filled with silt and chemical run off, damaging the water quality as well as its plant and animal life.

These contaminated rivers flow for miles and miles, picking up more contaminates as they pass through farms and towns. People who drink directly from these rivers often get sick. The main illnesses are typhoid and worms.

Value of Water in Kenya

By **Barbara Hinsman**, Vigeze Village, Vihiga, Kenya

Two major environmental concerns, which have greatly damaged water quality, are deforestation and agriculture. For the most part, agricultural techniques in Vihiga are low input and low impact, especially compared to those in the U.S. Still, farmers regularly use fertilizers and pesticides, which eventually end up contaminating the watershed. In addition, soil erosion from cultivating Vihiga's steep hills increases sedimentation in the rivers.

The problem is soil erosion is augmented by the dangerously high deforestation rate. Hills that were covered with indigenous forest three years ago are now bald, with no trees left to prevent the soil from washing into the rivers to be deposited in Lake Victoria. To compensate for the lack of fuel wood, the Maragoli people plant blue gum trees, of the Eucalyptus species. Unbeknownst to most Maragoli, these trees are very thirsty; they require a lot of water. A popular place to plant trees is near rivers, where the land is too swampy to cultivate. Now these "swamps," or wetlands, no longer exist due to the eucalyptus trees that drink up all the water. This is very unfortunate, considering that wetlands are natural filtering and cleansing systems for watersheds.

Damage to water quality by deforestation and agriculture is greatly exacerbated by population expansion. With a population density of over 1100 people/km2, Vihiga is incredibly overcrowded and still growing. As the numbers rise, water quality declines even further due to more human and livestock waste, more garbage thrown on the streets, more land being intensively farmed, more agricultural chemicals being used, and more trees being felled. So far, the only steps I've seen taken to the increase the availability of clean water (not necessarily to actively

improve water quality) are protecting springs and building pumps to access ground water before it becomes severely contaminated.

Precious Droplets

Stories About Value of Water In Ghana

By Peace Corps Volunteers
Who Served in Ghana
in 1999

Value of Water in Ghana

By Sasha Bennett, Bongo-Soe, Ghana

Technological advancements in the construction and installation of bore holes and hand-dug wells have improved people's lives. They are now able to take advantage of clean drinking water. Bore holes have a life span of 50 or more years. In fact, we are now trying to replace a 53-year-old bore hole. As far as agriculture, farmers plant crops according to seasons. Not many farmers practice dry season farming. People do not like to draw water from the bore hole for watering flowers or even crops, as they consider it a waste of good drinking water.

There are dams that were once used for irrigation purposes, but because the dams are so old (some over 50 years) the dammed water dries up during the hot season. But during the rainy season, the dams fill up and farmers use the water from irrigation canals to water their crops before the rain comes. Rice is usually grown around dams.

Value of Water in Ghana

By **Nell Todd**, Mafi-Dove, Ghana

I live near the Volta River and the sea. Fishermen mostly use the Volta River. There are only two bridges that cross the river so there are a lot of wooden canoes at various points along the river to shuttle people back and forth. A launch goes the length of the river every other day carrying goods and passengers.

Lake Volta is used as a means to transport materials and people to the northern part of Ghana. The dam is the source of electricity for much of the country.

About two hours from Mafi-Dove is the Tema Harbor, one of two main harbors in the country. This is where much of the importing and exporting takes place. Ships come from all over the world to pick up and drop off goods.

Value of Water in Ghana

By **Amy Wiedemann**, Gbefi, Volta Region, Ghana

Women and children bear the burden of keeping their households supplied with water, through numerous daily trips to and from the bore hole or river. Rainfall is so plentiful in my area that there really isn't an issue of community management, as there is in communities that face drought. For farmers, in times of plentiful rain they deal with the threat of rot, the need for suitable drainage, etc. During times of little rain, they face the enormous task of hauling bucket after bucket of water to save their parched crops. Regretfully, there are no irrigation systems.

by **Molly Campbell**, Amisano, Ghana

In Amisano the women and children usually get water either at the seminary bore hole, (about a quarter of a mile from the center of the village) one of the three wells, the river, or through the pipes. Villagers, however, have to pay for piped water (forty cedis or about three cents a bucket) so not many use this. Farmers do not irrigate; they depend on the rainy season year after year. If a drought occurs, the crops die and there is no food to eat or sell. In the Peace Corps Project Nursery we hand water during the dry season-each tree (thousands of them) getting a small drink one cup of water at a time.

Images from Kenya

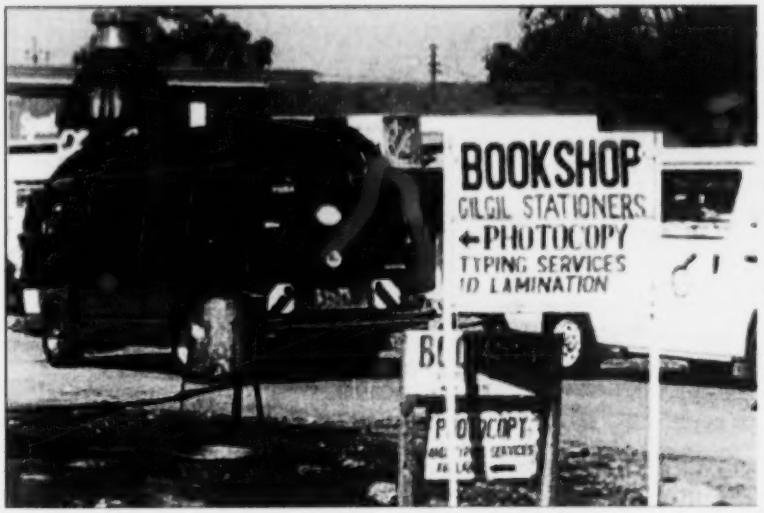
KE0101
PCV Jen Denzin is washing clothes, using one bucket for lathering and one for her two "rinse cycles." We wash clothes about once every two weeks to conserve water. The water is very dirty, but we use it until it almost looks black before changing it.

by Drew Denzin
Ololulunga, Kenya (1999)

KE0226
This man is making paper from local plant fibers (sedges). The fibers are immersed in a basin of water and soda and then are dried on special trays. There is a growing market for homemade paper. It is simple to do and all materials can be found locally.

by Kendall Rondeau
Gilgil, Rift Valley, Kenya (1999)

Images from Kenya



KE0229
The metal container on the left with the purple basin beneath it is a common hand washing system at hotelis (restaurants) in Kenya. This one holds charcoal in the top to heat the water.

by Kendall Rondeau
Gilgil town, Kenya (1999)

KE0305
Anthony Wachira is holding a piece of a pipe recently shattered by a herd of elephants. The water pipes lie buried beneath the path leading from the water intake structure to Kangaita Village.

by John and Kim Shumlansky
Mt. Kenya National Forest, Kenya
(1999)

Images from Kenya

KE0312
PCV Kim Shumlansky is with Mama Jerry in the tea fields. The altitude and heavy rains of Kangaita are good conditions for the tea to grow.

by John and Kim Shumlansky
Kangaita, Kenya (1999)

KE0335
The outhouses in Kenya are all squat--style which makes cleaning them with a bucket of water and a straw broom very simple. Small children are not allowed to use outhouses until they are about four, old enough to squat over the opening.

by John and Kim Shumlansky
Kangaita, Kenya (1999)

Images from Ghana

GH0106
This is land reserved for pasture and grazing for donkeys, cattle, goats, and sheep. During the rainy season farmers try to grow their crops on every available piece of land, but some is reserved strictly for livestock purposes.

by Sasha Bennett
Bongo-Soe, Ghana (1999)

GH0208
Peace Corps Project Nursery worker, Anthony Aduafo, buds a rough lemon root stock in order to get a late Valencia tree. Citrus fruits are primary crops in the Central Region, therefore rains are vital.

by Molly Campbell
Amisano, Ghana (1999)

Images from Ghana

Peace Corps Project Nursery Extensionist, James Arthur, clears around a pineapple plot so rains can get to roots. Pineapple is a money making venture in the Central Region. The Peace Corps Nursery Project grows pineapples to sell as a second income project.

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GH0304
Kojo (whose name means Monday born) is crossing a small stream to a nearby village. This stream is the traditional source of water (drinking and bathing) for the village. Bore holes are now in the village for safe drinking water and to prevent diseases caused by drinking river water.

by Nell Todd
Mafi-Dove, Ghana (1999)

Images from Ghana

GH0323
This water pipe is used to pump water from the Volta River to the town of Adidome, where people then fetch water from the standpipes. The Volta River is downstream from the dam that created the largest manmade lake in the world. Damming the river has damaged its ecology; however, the dam is used for creating electricity in the area.

by Nell Todd
Mafi-Dove, Ghana (1999)

GH0424
Two primary school students are washing the cups, basins, tubs, and other items that will be used for drinking and hand washing that day. Every student brings water to school each day, some of it is put in large cans for drinking. There is generally one cup per can so many people drink from the same cup. The water from home is also used for hand-washing, scrubbing, and other activities.
by Amy Wiedemann
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H0609
This is a view of Krobo Mountain. Everything is in bloom during the rainy season.

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Odumase Krobo, Ghana
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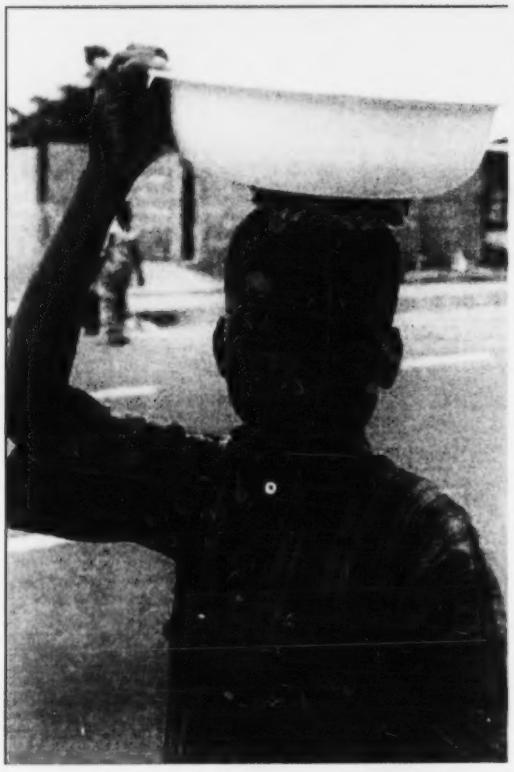

GH0617
"Ice water" is what this little boy yells out as cars pass by. Sold for 50 cedis, it is handfiltered through a sponge and probably contains bits of dirt and feces but many Ghanaians buy it and drink it.

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Kpong, Eastern Region, Ghana
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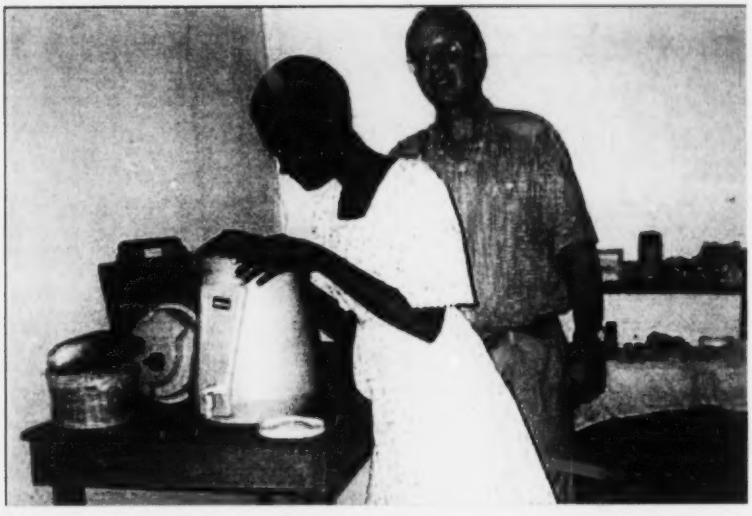

GH0718
Gifty Amenu is bringing water to my house. Because I am a teacher, the children do not allow me to carry my own water.

by Chris Botzman
Akome, Volta Region, Ghana
(1999)

Photo Narratives for Kenya Value of Water

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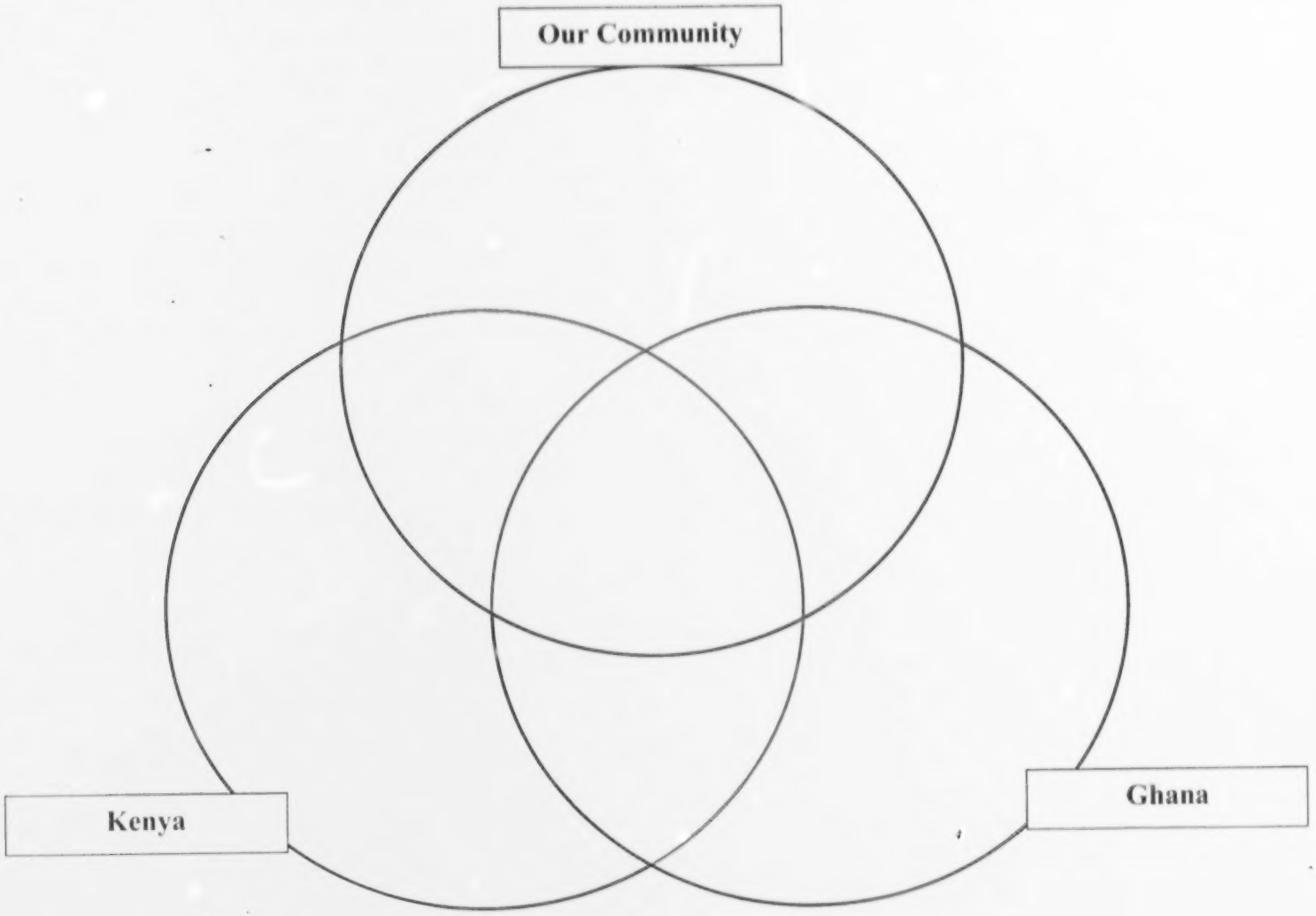
By Steve Tester
Kpong, Eastern Region, Ghana (1999)

GH0708
Gifty Amenu is taking a bucket bath. She carried a bucket of water to the shower area and is now taking a bath by pouring the bucket of water over herself.

By Chris Botzman
Akome, Volta Region, Ghana (1999)

Venn Diagram to Compare Kenya, Ghana, and Our Community



Writing Evaluation for Precious Droplets: Value of Water

Student Name_____

Date _____

3 = With No Assistance **2 = With Some Assistance** **1 = Unable to Articulate**

Area	Points	Descriptors
Content Accuracy	_____ _____	The student: • Wrote or dictated with a logical sequence of events • Used frequently used words to convey basic ideas
Content Depth	_____ _____	The student: • Included detailed descriptions of persons, places, objects, or experiences • Used information from pictures, stories, charts, maps, and personal experience
Process	_____ _____ _____	The student: • Used complete sentences • Used nouns, verbs, adjectives, and adverbs • Used prewriting, drafting, revising, editing, and publishing strategies
Presentation and Neatness	_____ _____	The student: • Formed letters in print and spaced words and sentences • Used conventions of spelling, capitalization, and punctuation
Creativity	_____ _____	The student: • Created an original book cover • Included pictures to illustrate the stories
Total		

Comments:

Reading Evaluation for Precious Droplets: Value of Water

Student Name_____

Date _____

3 = With No Assistance **2 = With Some Assistance** **1 = Unable to Articulate**

Area	Points	Descriptors
Content Accuracy	_____ _____ _____	The student: • Used self-correction strategies • Summarized information from a variety of materials • Asks and responds to questions about the texts
Content Depth	_____ _____ _____	The student: • Related new information to prior knowledge • Used picture clues and captions to aid comprehension and make predictions • Generates questions about topics of personal interest
Process	_____ _____ _____	The student: • Decodes unknown words using basic elements of phonetic analysis • Applies reading skills and strategies to a variety of informational materials • Gathers information through the reading process
Presentation and Neatness	_____	The student: • Reads aloud familiar stories and passages with attention to rhythm, flow and meter, prose and difficulty of the material
Creativity	_____	The student: • Makes insightful or creative contributions to group discussions about what has been read
Total		

Comments: